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PERFECT QUALITY
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Diamonds, Watches, Jewelry
South End of Highway Bridge

\$10 Gold and Porcelain
Removable Bridge
Over a feather-weight plate,
very light and durable.
SPECIAL, \$10.
Highest Class Dentistry at
Moderate Cost.
Teeth extracted painlessly by the
"Black Anesthesia Method." Fillings in
gold, silver, inlays and porcelain veneers.
Special method.
Phone 8, 3005.
Office hours 9 a. m. to 5 p. m., Sun-
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Dr. H. C. Q. Dr. J. M.
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DENTAL SPECIALISTS
933 G Street N. W.
OVER PEARLMAN'S BOOK STORE.

The PB 29th
ANNIVERSARY SALE
Now going on
Arthur Bridget Co.
The Avenue at Ninth

NEW YORK By Water
RESUMPTION OF
PASSENGER SERVICE
BY
OLD DOMINION TRANS. COMPANY FROM NORFOLK
3 SAILINGS A WEEK
THRU RATES FROM WASHINGTON
\$15.00 one way—\$27.00 round trip
Including Berth and Meals from Norfolk
Information, Literature and Reservations
AT CITY TICKET OFFICE
731 15th St. N.W.
NORFOLK & WASHINGTON STEAMBOAT COMPANY

THE PERNICIOUS PAIN OF RHEUMATISM WILL YIELD TO IT
Salicylic acid compounds are recognized by physicians to be most effective in relieving rheumatism, and especially is this true when the compound is aspirin. Aspirin is not a narcotic or habit-forming drug. Pure aspirin does, however, disturb digestion often-times, and because of this discomfort which follows its use in the old form, many people wrongly believe aspirin to be a heart depressant.
TINGLE'S LAXO ASPIRIN dispels the drawbacks of indigestion which confronted ordinary aspirin for years. It contains a digestant that is separately prescribed by physicians for dyspepsia. Within a short time after taking, usually ten minutes, the salicylic acid is in the blood, distending the tiny capillaries and bringing about relief from congestion and consequent pain and stiffness. The laxative, which it also contains aids in riding the body of toxins and poisons, assuring you of permanent relief. Remember the three points:
TINGLE'S LAXO ASPIRIN
—It's absorbed easily
—It relieves pain quickly
—It's a gentle laxative
Ask Your Druggist for the "Three Point Box" Therapeutic Research Laboratories, Washington, D. C.

BIG DOLLAR SALE
Eyes Examined Free
Shur-on Frames only \$1.00
Any Br. & N. Lens \$1.00
Prescriptions Filled at These Prices

Can You Read this Type
TEST TYPE.
Toric Lens. Flat Bifocle, 2-in-1.
\$1.00 Each \$1.00 Each

FREE—A handsome gold-filled Eye Glass Chain Free with every pair of Nose Glasses

The Newest Thing in Glasses
Colonial Rimless \$1.00 a Lens
CHAIN FREE
nose Pieces \$1.00
Don't wait until your eyes picture the effects of errors in vision. Defects of eye-sight taken in time are easily corrected. If they are allowed to go uncorrected, they may do great harm. Your eyes will serve you well if you treat them well.
Incorrectly ground or badly fitted glasses hurt the eyes. Even if you are able to see with them, they may be causing eye-strain, just as going without glasses when you need them causes eye-strain, though you may not realize it at the time.
Making and fitting glasses takes scientific knowledge, skill and care. It is the work of a specialist. Many headaches and other physical and nervous disorders come from the eyes, and are relieved when the eyes are properly treated. So you can't afford to have anything but the best treatment for your eyesight. This we can give you. We examine your eyes and make and fit all kinds of glasses. Don't wait for eye trouble to develop into a serious matter. Come in now and see if you have any. If you do not need glasses our expert will gladly tell you so.

POSITIVE PROOF—Get an extra pair of glasses. Bring in your glasses you are wearing and we will duplicate the lenses (except Bifocles) at \$1.00 each.

REPAIRING—We repair anything in the optical line. Bring us your repairs
LOUIS DICK & CO.
610 9th St. N. W.
MAIL ORDERS WILL RECEIVE PROMPT ATTENTION

TIME CHANGE AFFECTS BROADCASTING
RADIO FREQUENCY WORKS WELL WITH UNDERGROUND COIL

Experiments Successful Over Range Within 1,000 Miles.
P. B. Lyon, vice president of the Radio Instrument Company, following the receipt of a report from James W. Cook who has just concluded experiments with the radio frequency amplifiers designed and manufactured by the company and used with loop antenna stated yesterday that the underground loop antenna has been proved practicable for the reception of radiophone signals over long distances.
"With a loop in a concrete lined cellar, in a galvanized iron housing and in a hole six feet deep," the report said, "it was demonstrated that the use of radio frequency amplifier in connection with the underground loop antenna was practicable for distances up to 1,000 miles."
Although local stations which were evidently of high power interfered to some extent, there was very noticeable reduction of these disturbances and an almost entire elimination of static compared was made at intervals with a straight overhead aerial, which gave no greater results, but increased static effects through the receiving set.
During the experiment with loop in hole, a magnavox was attached to the receiver and the received signals amplified and made audible for a distance of several hundred feet. On Tuesday evening in spite of a heavy rain, and considerable water in the bottom of the pit, reception of radiophone signals was excellent. Schenectady, Detroit, Pittsburgh and Newark were heard clearly. The recent experiments were conducted in Cincinnati, and were previously a continuation of those conducted by Dr. J. Harris Rogers, of Hyattsville, Md.

Wired Wireless Heard on Ships
Metal Lines Guide Radio Frequency Waves for Long Distances.

Washington radio enthusiasts who heard the chimes as played from Waterlief, N. Y., on Thursday night and the recent radiophone communications between New York, Pa., and America several hundred miles at sea were listening to results of important developments in so-called wired wireless.
By such a system, waves of radio frequency are guided by ordinary line wires to a distant radiophone transmitting station, there to be re-radiated into space from the transmitting antenna. The re-radiated waves because of their unguided directions would not travel as far considering the power used, but of course by traveling space they were most practicable whereas wired wireless is impracticable and extremely expensive over extremely long distances.
In usual telephone conversation the frequencies used are from 100 to 3,000 cycles a second. Radio frequencies run as high as 3,000,000 cycles a second. The ordinary telephone transmitter which is not different essentially from a microphone often used, permits the sound vibrations of the voice to produce corresponding vibrations in an electric circuit, containing in part an electron tube generator and a modulating tube. Radio waves sent out by this apparatus follow telephone, telegraph, trolley and power lines. At the receiving station these radio waves are conducted through a filter or frequency selecting system, thence through a detector tube as in usual radio receiving. It is possible by a proper selection of frequencies to carry on several conversations at once. Recent developments in this field have accomplished inland to ship, train to train and wire phone to radio phone conversation.

Fireman Hurt; Blaze Routs Three Families
Three families were routed from their homes and a fireman was injured in an early morning blaze yesterday at the home of George Case, 1417 Thirty-third street northwest. The flames spread to the adjoining homes of John H. McIntyre, 1419 Shaw, 1415 Thirty-third street, doing a total damage of nearly \$4,000. John Engle, 32 years old, of No. 5 truck company, was injured when a window fell on his head.

QUICK RELIEF FROM NERVOUS HEADACHE
Do you ever start the day with nerves tense, head throbbing, your whole frame taut and "on edge"?
Tingle's Laxo Aspirin alone, you may fear to take because it gives you heartburn—but fear it no longer.
TINGLE'S LAXO ASPIRIN, the perfected aspirin, combines the wonderful pain combating powers of genuine aspirin with a digestant added to prevent this after-discomfort.
Its laxative qualities further benefit the general system, enabling the body to throw off the toxins or poisonous wastes, which when pent up in the system are the cause of headaches and pain.
No aspirin on the market can so readily attack the pain of nervous headaches. Be sure when you ask for aspirin to ask for TINGLE'S LAXO ASPIRIN, the aspirin with three points:
—It's absorbed easily
—It relieves pain quickly
—It's a gentle laxative
TINGLE'S LAXO ASPIRIN
Ask your druggist for the "Three Point Box." Therapeutic Research Laboratories, Washington, D. C.

SHIP, 1,500 MILES DISTANT, CORRECTS ITS TIME BY RADIO
Arlington Connected With Master Clock at Washington Observatory.



The photo shows a navy man making direct wire connection between the Arlington (NAA) transmitting apparatus and the master clock at the Washington Observatory. Thirty-fourth street and Massachusetts avenue northwest. This circuit is plugged in simultaneously with line wire circuits through the American Telephone and Telegraph, Western Union, Postal and other companies. Then follow the automatic flashing, by wire and wireless, the noon and 10 o'clock evening time ticks over many thousands of miles. The powerful transmitting station at Annapolis (NSS), sends these same signals through its arc transmitter on a wave length of 17,000 meters.
The dashes, as transmitted from Arlington are made at one second intervals starting five minutes before the hour. The last second of each minute is indicated by a longer dash.
Hears 1,500 Miles.
At the exact hour of 12 noon and 10 p. m., a very long dash terminates the time signals. Under ordinary atmospheric conditions these time ticks are heard from 1,500 to 3,000 miles.
It might be thought there would be a fraction of a second lost before the tick was heard on a ship 4,000 miles distant. Radio waves traverse that distance in some thing less than one two-hundredth of a second, and the most accurate timepiece known is not sensitive to a fraction of time less than one-thirtieth of a second.
Ship's Chronometer Unchanged.
When the time ticks are being received in the radio room aboard ship, the quartermaster on watch stands with phones on head watching a small ship's clock in his hand. At the long final dash he sets the clock. The ship's chronometer, a timepiece of precision located in the navigating officer's cabin is then compared with the clock as corrected by the quartermaster. Although its errors are noted daily, the ship's chronometer is not changed, for it is set accurately to Greenwich mean time.
Greenwich is a hamlet on the Thames river a short distance from London. Geographic positions in our part of the world are all determined with reference to their distance east or west of Greenwich, longitude 0 degrees.

In the Air Today.
NAA—NAVAL RADIO STATION.
10:30 a. m.—Meteorological report on 5,500 meters of arc transmitter.
12 m. and 10 p. m.—Time signal, weather report, ship orders.
10:30 p. m.—Naval press news. Wavelength, 2,550 meters.
8:50 to 9 p. m.—Radiophone, 1,200 meters. News.
300 METERS UNLESS OTHERWISE NOTED.
CHURCH OF THE COVENANT.
Conn. Ave. and N St.
11 a. m.—Morning service, sermon by Dr. Charles Wood, D. D., pastor.
8:30 p. m.—Afternoon service, weather report, ship orders.
8 p. m.—Evening service, sermon by Dr. Wood. Spiritual messages from literature and art: "The Message of the Painter," Luke, Angelo, Angelo and Tissot.
KDKA—PITTSBURGH.
11 a. m.—Services of Point Breeze Presbyterian Church.
2:45 p. m.—Children's Bible stories, "The Wee Sheep and the Great Shepherd."
7 p. m.—Radio Chapel at KDKA station, conducted by Rev. A. W. S. Garden, of Emanuel Episcopal Church.
KYW—CHICAGO.
Central time. Deduct one hour.
6:30 p. m.—Sunday radio chapel.
WJZ—NEWARK, N. J.
3 p. m.—Radio Chapel.
4:30 p. m.—Duo art piano and vocal orchestra.
6:30 p. m.—Reading by Ralph Mayhew and records from the "Bubble Book Talk Songs."
6:45 p. m.—Sandman stories by Abbie Phillips Walker.
7:30 p. m.—"History of Sugar," by Mr. Green, of the American Sugar Refining Company.
8 to 10:15—Musical program.
WBZ—SPRINGFIELD, MASS.
3 p. m.—Radio Chapel.
8 p. m.—Church service.

Mellon Revokes Order For Wilson Fund Taxes
Secretary of the Treasury Mellon yesterday ordered withdrawn the ruling of Internal Revenue Commissioner Blair that contributions to the Woodrow Wilson Foundation fund are not deductible from income tax returns.
The ruling will be reviewed, Mr. Mellon said, but he indicated he believed it should be completely overruled.
Policeman's Bicycle Stolen.
The bicycle of Park Policeman J. W. Shedy, 2301 N. street northwest, was stolen at Ninth street and New York avenue northwest yesterday.

Broadcasting Programs, Dates and Wavelengths for This Week.
LOCAL STATIONS DAILY.
NAA—NAVAL RADIO STATION.
10:30 a. m.—Meteorological report on 5,500 meters of arc transmitter.
12 m. and 10 p. m.—Time signal, weather report, ship orders.
8:30 to 9:00 p. m.—Radiophone news, 1,200 meters.
10:30 p. m.—Naval press news. Wavelength, 2,550 meters.
WWX—POSTOFFICE DEPARTMENT STATION.
10 a. m.—Weather report; 10:30 a. m., marketgram; both radiophone on 1,160 meters.
12:30 p. m., 2:45 p. m., 3:30 p. m., C. W. telegraph marketgram on 1,980 meters; 5 p. m., dairy products for New York, and grain report. Radiophone, 1,160 meters.
7:30 p. m. and 8 p. m., radio marketgrams; 9:50 p. m., weather report. All radiophone on 1,160 meters.
360 meters unless otherwise noted.
WMU—Doubleday-Hill Electric Company.
4:30-5:30—Music. Baseball scores from The Herald.
5:30-6:30—Radio Institute, spark transmission, 6:30 to 7:00 p. m.
MONDAY—WPM—Thomas J. Williams, Inc.
8 p. m.—Lecture and music.
TUESDAY—NOF—Naval Air Station.
4 to 4:30 p. m.—Music, 1,100 meters.
WJH—White and Boyer.
7:30 to 10 p. m.—Music and lecture.
WATCH HERALD DAILY SCHEDULE FOR PROGRAM.
WEDNESDAY AND FRIDAY.
8:30 to 9:50 p. m.—Music, 910 meters.
THURSDAY AND FRIDAY.
7:30 to 8:30 p. m.—Music.
DISTANT STATIONS DAILY.
KDKA—Pittsburgh: WJZ—Newark; KYW—Chicago; WBZ—Springfield; WGL—Medford, Mass.; WVP—Fort Wood, N. Y.; Also KQV—Doubleday-Hill Electric Co., Pittsburgh, Pa., on Monday, Wednesday and Thursday nights at 8:30 o'clock.

Radio Amateurs Offered Prizes
New York Show Will Give \$500 for Exhibition of Best Sets.

The important feature of the New York radio show to open at the Seventy-first Regiment Armory, Thirty-fourth street and Lexington avenue, on May 22 will be a prize exhibition of radio receiving sets constructed by amateurs in any part of the United States.
Prizes aggregating \$500 will be awarded the sets scoring the most points. Prominent men in the radio field will be the judges.
The conditions of the contest are: Any amateur may enter as many sets as he or she desires. "Amateur" is defined as "an individual who is not directly or indirectly engaged in the manufacture, production or sale of radio apparatus for commercial purposes." Entries will be judged on the point system, the entry receiving the greatest number of points will be awarded first prize; next highest, second prize, etc.
Efficiency of reception, 50 points; appearance, 10 points; simplicity of operation, 10 points; wiring and connections, 10 points; economical cost, 10 points; "hook-up" diagram, 10 points.
Prizes will be awarded as follows: First prize, \$100; second prize, \$75; third prize, \$50; fourth prize, \$25; fifth to fourteenth prizes, \$10 each; fifteenth to thirty-fourth, \$5 each.
A special prize of \$50 will be awarded the entry receiving the greatest amount of votes from those in attendance at the radio show.
Entry blanks may be had on written application to Amateur Committee, Radio Show, Hotel McAlpin, New York City.

Questions and Answers
Mistake Corrected.
Q. I have been following your radio column for some weeks with the interest of a commercial operator watching the growth of amateur radio. In today's column I noted a mistake in the answer to Mr. K's question concerning the two electrode tubes. The answer stated that the Fleming valve contained a filament and grid whereas it has no grid, but a plate. It is liable to give the beginner a wrong idea. M. K. G. Jr., Baltimore, Md.
A. Your correction is appreciated and it is hoped any other errors will be reported. The Fleming valve as you state is a two-element tube, plate and filament. Another error occurred in the issue of April 27 when in an article on the B battery the sentence in the introductory paragraph omitted the letter B: "The B battery may be a storage battery, etc." and the reading of the paragraph giving the impression that the A battery was a dry or primary cell.
Clapp-Eastman Set.
Q. I have a Clapp-Eastman type HR, single circuit regenerative receiving set, etc., and a two-stage audio frequency amplifier, which I use with a fairly good single wire antenna.
(a) Would I be able to hear Newark and Pittsburgh just as loudly with a similarly constructed set employing two stages of radio frequency amplification, and using either an outdoor or a loop antenna?
(b) Would I with such amplification, and an outdoor antenna, be reasonably certain of hearing such distant stations as Detroit and Chicago much louder than is possible with two stages of audio amplification?
(c) Would a stage of radio and a stage of audio amplification be much better than two stages of radio amplification for general phone broadcasting reception?
(d) Has radio frequency amplification any drawbacks except confinement to certain wavelengths?
R. E. W.
A. (a) I would suggest that you consult local dealers who handle this type of set. Radio frequency will not increase the strength of a signal you would otherwise receive. It is a feature of the radio frequency amplifier to amplify radio waves before they are of the requisite strength to be detected by the detector tube. In this respect the receiving range of your set would be broadened by the suggestions you make.
(b) You would hear those stations with less adjustment, but without increase in the strength of signals. To get the equivalent strength of signals you would need to use two stages audio in connection with the radio frequency.
(c) For local work use one stage

PLAN TWO RADIO FACTORIES IN D. C.
The organization of a new radio corporation and the reorganization of another company long established in Washington has resulted in some confusion, due to simultaneous announcements from both concerns.
The Radio Instrument Company, recently reorganized with Brent Daniels as president, already has secured a radio site and expects to begin production within a brief period. Mr. Daniels, the new president, formerly was connected with the Bureau of Standards, and perfected the radio frequency transformer which is the distinguishing feature of the amplifier sets manufactured by the Radio Instrument Company.
The Washington Radio Corporation, an entirely separate and distinct enterprise, is offered by Charles N. Schneider, president; James Lawrence Endicott, mechanical engineer; and J. N. Halper, secretary-treasurer. This concern announces it soon will begin the manufacture of sets on a large scale.

DR. LEHMAN
DENTAL SURGEON
PLATE SPECIALIST
Plates Repaired While You Wait.....
Crown Bridge and Porcelain Work. Painless Extractions.
307 7th St. Opposite Naka.

Pittsburg
Automatic Gas Water heaters
Edgar Morris Sales Co.
1385 G St. N.W. Main 1028-1033.

LADIES AND CHILDREN'S PANAMA HATS
Cleaned, Bleached and Blocked by Experts
Vienna Hat Factory
435 11th St. N. W.

Dr. Waldo
DENTIST
No Pain No High Prices
First-class Work
Guaranteed 20 Years
Phone Franklin 6545
309 7th St. N. W.

audio, one stage radio; for distant work use two-stage radio.
(d) None except the expense and necessity for proper radio frequency transformers suitable to the desired wave lengths.
Money-Comb, Cell Sheet.
Q. Please inform me how to calculate the size of honey-comb set to use for different wave lengths for secondary and tertiary. R. J.
A. The table you need and its uses will be explained in tomorrow's Herald.
BRUSH UP THE GUM SORE
with a bouquet of Gude's Flowers. 10¢ St. N.W.—487.

RADIO For Everybody
You can quickly learn how to design, construct, install, operate and maintain your own set or you can qualify for the remarkable opportunities which are constantly opening to men with a working knowledge of radio. Come in and tell us about your plans. Let the oldest-established school in Washington serve you. We have a complete line of radio apparatus also.
NATIONAL RADIO INSTITUTE.
1245 Pennsylvania Ave. N.W.

WESTINGHOUSE RADIO RECEIVING SETS
AND PARTS
FOR IMMEDIATE DELIVERY
WE INSTALL IN YOUR HOME FULLY EQUIPPED OUR SETS FROM \$16.50 UP
Even the Kiddies Can Work Our Sets
Westinghouse Jr., \$35.00 Inst. Range, Fifty Miles
Larger Sets, \$150.00 and \$200.00
Westinghouse Sr., \$75.00 Inst. Range Up to 1,000 Miles
Full Line of Radio Parts Carried in Stock
Listening-In Concerts from 10 A. M. to 10 P. M.
Everybody Welcome—Come in and Let Us Explain Our
NEW COUPLER LOOP
CAPITAL RADIO SALES AGENCY
724 11th Street N. W.
The Only Exclusive Radio Store in Washington
L. M. DENHAM (Radio 327), Manager.

Radio Equipment and Radio Service
When we opened this Department we determined to make service a feature of it. It's a new subject and there is much upon which you'll want advice. Please don't consider whether you are buying or not, but feel free to consult the experts you'll find here. They know—and what they know is at your "service."

Complete Sets of Standard Makes \$15.00 to \$375.00

Parts
Everything needed for assembling of Radio Outfit. Fada Rheostats, Sockets, G. A. Dials, Rotors, etc., etc.
Head Sets
Dictagraph, 3,000 ohms, lightweight and guaranteed.

"A" and "B" Batteries \$1.50 to \$10.00

Radio Literature
The authorized Text Books, Blueprints and Technical Magazines.
10c to \$2.25

Our receiving station is catching messages week days from 4:30 to 5:30 p. m. Come on and "listen in."
Saks & Company
Pennsylvania Ave. Seventh Street